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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,413	11/05/2001	Shuji Yoneda	15162/04160	6864

24367 7590 03/17/2004

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EXAMINER

KOVALICK, VINCENT E

ART UNIT PAPER NUMBER

2673

DATE MAILED: 03/17/2004

*79*

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/993,413

Applicant(s)

YONEDA ET AL.

Examiner

Vincent E Kovalick

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-13 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Amendment***

1. This Office Action is in response to Applicant's Amendment dated January 8, 2004 in response to USPTO Office Action dated October 6, 2003. The amendments to claims 5 and 10 have been noted and entered in the record, and Applicant's Remarks/Arguments have been reviewed.

- a. Applicant's arguments filed January 8, 2004 have been fully considered but they are not persuasive.

Regarding Applicant's comments relative to claims 1-4 and 6-9 indicating Hebiguchi et al. (USP 6,184,853) does not teach a LCD wherein the driver drives the respective fields composing one frame so that a scanning order of fields is discontinued at least once. Hebiguchi et al. teaches (col. 8, lines 10-13 and col. 10, lines 16-24) a driving method wherein field skipping is performed.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. (USP 6,184,853).

Relative to claim 1, Hebiguchi et al. **teaches** a method of driving a display device (col. 1, lines 15-67; col. 2, lines 1-67 and col. 3, lines 1-15); Hebiguchi et al. further **teaches** a liquid crystal display (LCD) apparatus comprising: a liquid crystal display element comprised of a liquid crystal layer and having a plurality of pixels arranged in a matrix form (col. 4, lines 30-63); and a driver for dividing one frame into at least four fields and interlace-scanning the at least four fields (col. 12, lines 1-12 and col. 13, lines 6-10), wherein said driver drives the respective fields composing one frame so that a scanning order of the fields is discontinued at least once (col. 8, lines 10-13; col. 10, lines 16-24).

The difference between the teaching of the prior art of record and that of the instant invention is that the instant invention addresses a LCD which is capable of rewriting a screen at high speed as well as suppressing generation of a stripe pattern due to black out at the time of rewriting on screen as much as possible; wherein Hebiguchi et al. addresses the method and means for driving a matrix driving display device which displays one color by combining a plurality of basic colors.

It would have been obvious to a person of ordinary skill in the art at the time of the invention that the limitations recited in claim 1 of the instant invention are addressed by the teachings of Hebiguchi et al. as indicated hereinabove.

Regarding claim 3, Hebiguchi et al. further **teaches** said LCD wherein said driver drives the respective fields so that a scanning order thereof is always discontinued (col. 12, lines 60-65 and Fig. 15). Fig. 15 shows the sequence of switching from fields F1 to F2 to F3 to F4 and back to F1 to continue the sequence until the end of each field is reached, the switching fields takes place

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after scanning only one line for each field at a time, consequently the scanning order is always discontinued after writing one line per field.

As to claim 6, Hebiguchi et al. **teaches** said LCD wherein the display element is constituted so that a plurality of liquid crystal layers are laminated, and the liquid crystal layers are scanned by said driver (col. 4, lines 30-63 and Fig. 1).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Ozawa et al. (USP 6,501,454).

Relative to claim 2, Hebiguchi et al. **does not teach** a LCD wherein said drive drives scanning lines by means of a driving waveform having a reset period for resetting a state of liquid crystals, a selection period for selecting a final display state of the liquid crystals, and a maintaining period for establishing the state selected at the selection period.

Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

Ozawa et al. **teaches** a LCD driving method for driving an apparatus using the LCD (col. 2, lines 32-65; col. 3, lines 1-65 and col. 4, lines 1-57); Ozawa et al. further **teaches** a LCD wherein said drive drives scanning lines by means of a driving waveform having a reset period for resetting a state of liquid crystals, a selection period (T3) for selecting a final display state of the liquid crystals, and a maintaining period (T4) for establishing the state selected at the selection period (col. 8, lines 37-67 and Fig. 4).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hebiguchi et al. the feature as taught by Ozawa et al. in order

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to provide a driving method in which various types of display patterns can be displayed with a predetermined driving voltage margin being maintained and power consumption being prevented from increasing, (Ozawa et al. col. 2, lines 32-38). Further, both systems are directed towards driving LCD devices.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Shiba et al. (USP 5,526,014).

Regarding claim 4, Hebiguchi et al. **does not specifically teach** said LCD apparatus wherein said driver successively scans odd-numbered lines of the respective fields and successively scans even-numbered lines; though Hebiguchi et al. does teach the use of interlace-scanning (col. 13, lines 6-10).

Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

Shiba et al. **teaches** a semiconductor device for driving a LCD panel (col. 4, lines 36-67 and col. 5, lines 1-3); Shiba et al. further **teaches** said LCD apparatus wherein said driver successively scans odd-numbered lines of the respective fields and successively scans even-numbered lines (col. 2, lines 36-45).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to make available to the device as taught by Hebiguchi et al. the feature as taught by Shiba et al. in order to provide the benefit of doubling the vertical resolution of the image in turn yielding a smoother displayed image. Further, both systems are directed towards driving LCD devices.

6. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Nagai et al. (USP

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5,091,557).

Relative to claim 7, Hebiguchi et al. **does not teach** said LCD apparatus wherein the liquid crystals included in said LCD element have memory property.

Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

Nagai et al. **teaches** liquid crystal properties (col. 2, lines 50-67 and col. 3, lines 1-17); Nagai et al. further **teaches** said LCD apparatus wherein the liquid crystals included in said LCD element have memory property (col. 9, lines 23-27).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to make available to the device as taught by Hebiguchi et al. the feature as taught by Nagai et al. in order to provide a LCD element with desirable memory properties thereby reducing the power consumption necessary to hold the said LCD element at a desired state. Further, both systems are directed at driving LCD devices.

Regarding claim 8, Nagai et al. further **teaches** said LCD apparatus wherein said liquid crystals show a cholesteric phase at room temperature (col. 15, lines 51-54).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Sandoe et al. (USP 6,243,061).

Relative to claim 9, Hebiguchi et al. **does not teach** said LCD apparatus wherein the scanning of next field is started based on reset period end timing of one scanning line of the previous field. Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

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Sandoe et al. **teaches** an active matrix display device and methods of driving such (col. 3, lines 19-67 and col. 4, lines 1-56); Sandoe et al. further **teaches** said LCD apparatus wherein the scanning of next field is started based on reset period end timing of one scanning line of the previous field (col. 8, lines 5-11).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to make available to the device as taught by Hebiguchi et al. the feature as taught by Sandoe et al. in order to generate the said reset signal indicating the start of scanning the next field to be scanned and set the proper voltages to begin the next selection period.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. as applied to claim 1 in item 3 hereinabove, and further in view of Kobayashi et al. (USP 6,602,563).

Regarding claim 10, Hebiguchi et al. **does not teach** said LCD apparatus wherein the driver drives scanning lines by means of a driving waveform having a field scanning period, said field scanning period comprising, in order, a reset period for resetting a state of liquid crystals, a selection period for selecting a final display state of the liquid crystals and a maintaining period for establishing the state selected at the selection period, said driver configured to start scanning of a next field based on an end timing of a reset period of a previous field.

Hebiguchi et al. teaches driving a matrix display device that displays one color by combining a plurality of basic colors.

Kobayashi et al. **teaches** a liquid crystal display which carries out matrix driving of a chiral nematic liquid crystal composition which is capable of displaying an image thereon (col. 1, lines 46-67 and col. 2, lines 1-4); Kobayashi et al. further **teaches** said LCD apparatus wherein the



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driver drives scanning lines by means of a driving waveform having a field scanning period, said field scanning period comprising, in order, a reset period for resetting a state of liquid crystals, a selection period for selecting a final display state of the liquid crystals and a maintaining period for establishing the state selected at the selection period, said driver configured to start scanning of a next field based on an end timing of a reset period of a previous field (col. 3, lines 45-55 and col. 42, lines 36-42).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hebiguchi et al. the feature as taught by Kobayashi et al. in order to generate the said reset signal indicating the start of scanning the next field to be scanned and set the proper voltages to initiate the data signal selection process and then to maintain the signal until the next reset signal starting of the scanning of the next field.

Regarding claims 11, 12 and 13, the remarks presented above in items 3 and 6 with regard to claims 6, 7 and 8, apply equally to claims 11, 12 and 13.

***Allowable Subject Matter***

9. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 5, the major difference between the teachings of the prior art of record (USP 6,184,853, Hebiguchi et al. and USP 6,501,454, Ozawea et al.) is that said prior art of record **does not teach** the LCD apparatus wherein the driver scans the scanning lines according to the equation " $S = a + nk$ ", where "S" is the scanning lines to be driven; "a" is a variable

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number with an initial value of "one"; "n" is a variable number with an initial value of "zero", and "k" is in integer of not less than 2.

*Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	6,414,666	Yamakawa et al.
U. S. Patent No.	5,754,153	Mizutome et al.
U. S. Patent No.	5,734,367	Tsuboyama et al.
U. S. Patent No.	5,726,679	Kanno et al.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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***Responses***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E Kovalick whose telephone number is 703 306-3020. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 306-0377.



Vincent E. Kovalick  
March 12, 2004



**BIPIN SHALWALA**  
**SUPERVISORY PATENT EXAMINER**  
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